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# Healthy diet

26 January 2026 | Reading time: 11 min (2994 words)

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## Key facts

- Diet plays a critical role in shaping the health and well-being of both individuals and populations, and unhealthy diets are a major risk factor for disease and disability.
- Healthy diets help to protect against malnutrition in all its forms, as well as noncommunicable diseases (NCDs), including diabetes, heart disease, stroke and cancer.
- Healthy dietary practices start early in life – breastfeeding fosters healthy growth and improves cognitive development.
- Dietary behaviours and preferences established in childhood and adolescence often extend into adulthood.
- Healthy diets come in many forms, but the four core principles of adequacy, balance, moderation and diversity should be the foundation of any healthy diet.
- A diet must also be safe to be healthy, i.e. free from microbial and chemical contaminants.
- A variety of minimally processed and unprocessed foods low in unhealthy fats, free sugars and sodium are the foundation of any healthy diet.

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## Overview

Consuming a healthy diet throughout the life-course helps to prevent malnutrition in all its forms as well as a range of noncommunicable diseases (NCDs) and conditions.

However, change in food production and food systems, rapid urbanization and changing lifestyles have led to a shift in dietary patterns. People are now consuming more highly processed foods high in unhealthy fats, free sugars and salt/sodium, and many people do not eat enough fruit and vegetables or consume sufficient dietary fibre.

The exact make-up of a diversified, balanced and healthy diet will vary depending on individual characteristics (e.g. age, gender, lifestyle and degree of physical activity), cultural context, locally-available foods and dietary customs.

However, the basic principles of what constitutes a healthy diet remain the same and are described in four principles:

- **adequacy: meets, without exceeding, micronutrient and macronutrient needs such that deficiencies are prevented;**
- **balance: total energy intake is balanced with energy expenditure, with an adequate balance across the three primary sources of energy, protein, fats and carbohydrates;**
- **moderation: limited intake of nutrients, ingredients, and foods that may be detrimental to health;**
- **diversity: inclusion of a wide variety of nutritious foods within and across food groups.**

Diets embracing these four core principles promote health throughout the life course.

# WHO guidance on healthy diets

## Carbohydrates

Carbohydrates provide the primary energy source for the body. The amount of carbohydrate in the diet can vary and although low and very low carbohydrate diets are used to treat certain conditions, for most people a variety of unrefined carbohydrates should represent a significant portion of the diet, approximately 45–75% of total daily energy.

- **Carbohydrates in the diet should come primarily from whole grains, vegetables, fruits and pulses. Examples of whole grains include unprocessed maize, millet, oats, wheat and brown rice. Examples of pulses include lentils, chickpeas, beans, and dried peas.**
- **Fresh fruit and vegetables are great choices but frozen and canned are also good, provided they don't have added sugars or excess sodium. While fruit juice can be consumed, most varieties including those without added sugars contain significant amounts of free sugars, the consumption of which should be limited.**
- **Everyone older than 10 years of age should aim for at least 400 grams of fruits and vegetables per day, with lesser amounts for children under 10: at least 250 or 350 grams for children 2–5 or 6–9 years of age, respectively.**

Everyone older than 10 years of age should also aim for a daily intake of at least 25 grams of naturally-occurring dietary fibre as found in foods, with lesser amounts for children under 10: at least 15 or 21 grams for children 2–5 or 6–9 years of age, respectively.

## Sugars

- **The consumption of free sugars should be limited to less than 10% of total daily energy intake, which is equivalent to 50 g (or about 12 level teaspoons) for a person of healthy body weight consuming about 2000 calories per day. Limiting further to 5% or less of total daily energy intake may provide additional health benefits.**
- **Consumption of free sugars should be limited throughout the life course. Free sugars include monosaccharides and disaccharides (e.g. sucrose, fructose, glucose) added to foods and beverages by the manufacturer, cook or consumer, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates.**
- **Reducing consumption of free sugars (and maintaining low levels of intake) should be accomplished without the use of non-sugar sweeteners. Examples of common non-sugar sweeteners include acesulfame K, aspartame, advantame, cyclamates, neotame, saccharin, sucralose, stevia and stevia derivatives.**

## Fats

Fat is an essential nutrient for proper functioning of cells in the body, and two fatty acids – linoleic acid and α-linolenic acid – can only be obtained from the diet. Therefore, in adults, a minimum of 15% of the energy consumed per day should be from fat, up to 30% of total daily calories or more as described below.

- **For adults, limiting the amount of total fat in the diet to 30% or less of total daily energy intake may help to prevent unhealthy weight gain in the adult population. Children have unique energy requirements for optimal growth and development throughout childhood and adolescence and therefore higher total fat intakes may also be acceptable.**
- **The quality of dietary fat is important. Unsaturated fat (found in fish, avocado and nuts, and in sunflower, soybean, canola and olive oils) is preferable to saturated fat (found in fatty meat, butter, palm and coconut oil, cream, cheese, ghee and lard) and trans fat of all kinds, including both industrially-produced trans fat (found in baked and fried foods, and pre-packaged snacks and foods, such as frozen pizza, pies, cookies, biscuits, wafers, and cooking oils and spreads) and ruminant trans fat (found in meat and dairy foods from ruminant animals, such as cows, sheep, goats and camels).**
- **No more than 10% of total energy intake should come from saturated fat and no more than 1% of total energy from trans fat of any type. Lower intakes of saturated and trans fat may have additional health benefits. Saturated and trans fat can be replaced with polyunsaturated fat or monounsaturated fat from plant sources. Saturated fat can also be replaced by carbohydrates from foods containing naturally-occurring dietary fibre, such as whole grains, fruits, vegetables and pulses. In particular, industrially-produced trans fats are not part of a healthy diet and should be avoided.**

- **Fat intake, especially saturated and trans fat, can be reduced by: steaming or boiling instead of frying when cooking; replacing butter, lard and ghee with oils rich in polyunsaturated fat, such as soybean, canola (rapeseed), corn, safflower and sunflower oils; eating reduced-fat dairy foods and lean meats, or trimming visible fat from meat; and limiting the consumption of baked and fried foods, and pre-packaged snacks and foods (e.g. doughnuts, cakes, pies, cookies, biscuits and wafers) that contain industrially-produced trans fat.**

## Protein

Proteins provide the building blocks for many of the structural elements of the body, such as muscle, as well as functional molecules such as hormones and enzymes. Protein intake at 10–15% of total daily energy intake is generally sufficient to meet the needs of adults (approximately 50–75 grams for a person of healthy body weight consuming about 2000 calories per day).

- **Protein intake may be greater than 15% of total daily energy intake during adolescence, and for athletes, body builders and others actively building and/or maintaining significant amounts of muscle mass. Consuming excessive amounts of protein, however, can place a metabolic burden on the body, particularly the kidneys.**
- **Protein can come from a mix of animal and plant sources. Protein digestibility and quality should also be considered, particularly in childhood and adolescence. In some contexts, switching to more plant-based sources of protein may be preferable to decrease risk of diet-related noncommunicable diseases in adults. In other contexts, consumption of animal source foods is still important to favour nutrient intakes, particularly in children and pregnant/lactating women.**

## Salt/sodium and potassium

Sodium and potassium are essential minerals but high intake of sodium (salt) is associated with increased blood pressure which can lead to cardiovascular disease. Salt intake is high in many parts of the world and people are often unaware of the amount of salt they consume. Potassium can mitigate the negative effects of elevated sodium consumption on blood pressure.

- **In many countries, most salt comes from processed foods (e.g. ready meals; processed meats such as bacon, ham and salami; cheese; and salty snacks) or from foods consumed frequently in large amounts (e.g. bread). Salt is also added to foods during cooking (e.g. bouillon, stock cubes, soy sauce and fish sauce) or at the point of consumption (e.g. table salt).**
- **In adults, salt intake should be limited to less than 5 grams per day (2 grams per day sodium). For children the maximum amount of sodium is less and needs to be estimated based on energy intake.**
- **Salt intake can be reduced by limiting the amount of salt and high-sodium condiments (e.g. soy sauce, fish sauce and bouillon) when cooking and preparing foods; not having salt or high-sodium**

sauces on the table; limiting the consumption of salty snacks; and choosing products with lower sodium content.

- A potassium intake of at least 90 mmol/day (3510 mg/day) for adults may be beneficial. For children the amount of potassium is less and needs to be estimated based on energy intake. Intake of potassium can be increased by consuming fresh fruit and vegetables.
- Lower-sodium salt substitutes (LSSS), in which a proportion of the sodium is typically replaced with potassium, are alternatives to regular table salt.. These products can contribute to reducing sodium intake in people not at risk of hyperkalaemia (elevated potassium levels in the blood), especially in populations where discretionary salt is a major source of sodium intake and can therefore help reduce cardiovascular disease through both lower sodium intake and higher potassium intake. WHO recommends this intervention for settings where health systems have the capacity to detect promptly and manage potential cases of kidney disease.

## Vitamins and minerals (micronutrients)

Micronutrients are essential vitamins and minerals – there are about 30 in total, including 13 vitamins (such as A, B-complex, C, D, E, and K) and 16 minerals (like iron, iodine, zinc, and calcium) – that the body needs in small amounts for proper growth and health. Deficiencies in these nutrients can lead to serious health issues, from anaemia and scurvy to cognitive impairment and neural tube defects. Globally, micronutrient deficiencies are highly prevalent: more than half of children under five and over two-thirds of non-pregnant women of reproductive age are deficient in at least one key micronutrient (typically iron, zinc, vitamin A, or folate).

- Encourage a diet with a wide variety of nutrient-dense foods, including fruits, vegetables, whole grains, legumes, nuts, seeds, and lean animal-source foods, to ensure adequate intake of key vitamins and minerals.
- Promote the consumption of micronutrient-rich foods regularly – for example, beans or lean meats to support iron intake; dark-green leafy vegetables to improve vitamin A status; or iodized salt to avoid iodine deficiency.
- In countries where micronutrient deficiencies are highly prevalent (20% or higher), integrate large-scale food fortification into national public health strategies by fortifying widely-consumed staples and condiments – such as flour, rice, oil, salt, or sugar – with key micronutrients (e.g., iron, folic acid, vitamin A, iodine, and zinc).

## Foods

A wide variety of foods, including a variety of fruits, vegetables, pulses, wholegrains and lean sources of protein, help ensure a healthy diet. Diverse diets, based on a wide variety of foods, between and within food groups, are associated with a greater likelihood of meeting vitamin and mineral requirements and reduced risk of diet-related noncommunicable diseases. For

many adults, a shift towards more plant-based sources of protein may bring health benefits, particularly when the shift is away from red meat. Foods high in unhealthy fats, free sugars and sodium should be limited.

Additionally, diets containing significant amounts of highly processed foods, which are often high in sodium, sugar or unhealthy fats, are associated with negative health outcomes.

## For infants and young children

In the first 2 years of a child's life, optimal nutrition fosters healthy growth and improves cognitive development. It also reduces the risk of becoming overweight or obese and developing NCDs later in life.

Advice on a healthy diet for infants and children is similar to that for adults, but the following elements are also important:

- **infants should be breastfed exclusively during the first 6 months of life;**
- **infants should be breastfed continuously until 2 years of age and beyond;**
- **from 6 months of age, breast milk should be complemented with a variety of adequate, safe and nutrient-dense foods. Salt and sugars should not be added to complementary foods;**
- **infants and young children of 6–23 months of age should consume a diverse diet that includes animal source foods, such as meat, fish, or eggs, as well as fruits and vegetables;**
- **consumption of starchy staple foods should be minimized; and**
- **foods high in sugar, salt and trans fats as well as sweet beverages should be avoided.**

# How to promote healthy diets

Diet evolves over time, being influenced by many social and economic factors that interact in a complex manner to shape individual dietary patterns. These factors include income, food prices (which will affect the availability and affordability of healthy foods), individual preferences and beliefs, cultural traditions, and geographical and environmental aspects (including climate change). Therefore, creating a healthy food environment – that promotes a diversified, balanced and healthy diet – requires the involvement of multiple sectors and stakeholders, including government, and the public and private sectors.

Governments have a central role in creating a healthy food environment that enables people to adopt and maintain healthy dietary practices. Evidence-based, cost-effective and other recommended actions by policy-makers to create a healthy food environment include the following:

- creating coherence in national policies and investment plans – including health, food and agricultural, education, fiscal and trade policies – to promote a healthy diet and protect public health through:
    - increasing incentives (e.g. through subsidies) for producers and retailers to grow, use and sell fresh fruit and vegetables;
    - establishing taxes and reducing incentives for the food industry to decrease production of processed foods containing high levels of saturated fat, *trans* fat, free sugars and salt/sodium;
    - encouraging reformulation of food products to reduce the contents of saturated fat, trans fat, free sugars and salt/sodium, with the goal of eliminating industrially-produced trans fat;
    - implementing mandatory instruments to protect children from the harmful impact of food marketing;
    - establishing standards to foster healthy dietary practices through ensuring the availability of healthy, nutritious, safe and affordable foods in pre-schools, schools, other public institutions and the workplace; and
    - encouraging transnational, national and local food services and catering outlets to improve the nutritional quality of their foods – ensuring the availability and affordability of healthy options – and to review portion sizes and pricing;
- encouraging consumer demand for healthy foods and meals through:
    - promoting consumer awareness of a healthy diet;
    - developing school policies and programmes that encourage and enable children to adopt and maintain a healthy diet;
    - nudging interventions that deliberately adjust the choice architecture and the context within which consumers make dietary decisions, including how options are presented, placed and priced;
    - educating children, adolescents and adults about nutrition and healthy dietary practices;
    - encouraging culinary skills, including in children through schools;
    - supporting point-of-sale information, including through nutrition labelling that ensures accurate, standardized and comprehensible information on nutrient contents in foods (in line with the Codex Alimentarius Commission guidelines);
    - implementing interpretive front-of-pack labelling to facilitate consumer understanding; and
    - providing nutrition and dietary counselling at primary health-care facilities;
- promoting appropriate infant and young child feeding practices through:
    - implementing the International Code of Marketing of Breast-milk Substitutes and subsequent relevant World Health Assembly resolutions;
    - implementing policies and practices to promote protection of working mothers;
    - ensuring access to quality counselling on infant and young child feeding during pregnancy and the first two years of life; and
    - promoting, protecting and supporting breastfeeding in health services and the community, including through the Baby-friendly Hospital Initiative.

# WHO response

WHO's work to improve diets and nutrition is rooted in mandates from its Member States through resolutions of the World Health Assembly (WHA) and the United Nations General Assembly (UNGA). Momentum started with the WHO Global Strategy on Diet, Physical Activity and Health in 2004, which called for coordinated action across governments, civil society, the private sector and WHO to promote healthy diets and physical activity.

Over time, further resolutions, including the Comprehensive implementation plan on maternal, infant and young child nutrition and its global targets, have shaped WHO's work around three core areas:

- target-focused action;
- protecting people from harmful dietary components and commercial practices; and
- multisectoral action across systems.

Together, these resolutions require WHO to support all countries in ensuring that everyone, everywhere, can access healthy, safe and affordable diets throughout life.

**1. Building the evidence: guidelines, standards and tools**
To fulfil these mandates, WHO turns nutrition science into practical, evidence-based guidance. WHO has produced more than 15 guidelines over the last decade, including recommendations on reducing salt, sugars and unhealthy fats; eliminating industrially produced trans fats; improving complementary feeding; and supporting breastfeeding, among others.

**2. Supporting action: turning evidence into impact**
WHO supports countries in implementing these policies through multiple initiatives. The REPLACE action package offers a roadmap to eliminate industrial trans fats and has already helped protect more than 50% of the global population. WHO also co-leads major global efforts – including the Global Action Plan on Child Wasting, the Framework to Accelerate Anaemia Reduction and the Acceleration Plan to Stop Obesity – to support countries in developing national roadmaps and strengthening primary health-care services

**3. Monitoring progress: data for accountability**
WHO collaborates with FAO, UNICEF and academic partners to strengthen global monitoring of dietary patterns and food-policy implementation. WHO uses low-burden tools and standardized metrics to assess dietary intake at population level, enabling more frequent and

comparable data collection . WHO also maintains the Global Database for Food and Nutrition Actions (GIFNA), which tracks more than 3100 food and nutrition policies worldwide, helping monitor progress and identify policy gaps.